

## REMARKS

Claims 5-10 are presently pending in the application. Claim 7 has been made independent and claims 5, 6 and 8-10 are now dependent on claim 7. No new matter has been added and support for the amendments to the claims can be found in the specification and drawings. In view of the claim amendments and argument presented hereinbelow, Applicants respectfully submit that these claims are now in condition for allowance.

### **Claim Rejections -- 35 U.S.C. § 102(b)**

Claims 1-10 stand rejected under Section 102(b) as being anticipated by Aksyuk U.S. Pat. No. 5,974,207 ("Aksyuk"). Applicants respectfully traverse this rejection and submit that the claims, as amended, are not disclosed or suggested by Aksyuk.

In accordance with an aspect of the present invention, an optical four-port wavelength-selective crossbar switch (4WCS) is provided. As set forth in claim 7, the 4WCS comprises:

an optical demultiplexer separating a wavelength division multiplexed (WDM) signal having a plurality of wavelengths into a plurality of wavelength channel signals, each wavelength channel signal corresponding to at least one wavelength of the WDM signal;

an optical multiplexer receiving a wavelength channel signal corresponding to each wavelength of the separated WDM signal and forming an output WDM signal;

an input optical circulator having a first port, a second port and a third (drop) port, the input optical circulator receiving the WDM signal through the first port and coupling the WDM signal to the optical demultiplexer through the second port, a drop signal being received through the second port of the input optical circulator being output from the drop port of the input optical circulator;

an output optical circulator having a first (add) port, a second port and a third port, the output optical circulator receiving the output WDM signal from the optical multiplexer through the second port and outputting the output WDM signal through the

third port, an add signal coupled to the add (first) port being output from the second port of the output optical circulator; and

at least one double-sided reflector being disposed in a path of a selected wavelength channel signal between the optical demultiplexer and the optical multiplexer, each double-sided reflector being selectably operated so that in a first mode of operation a first side of the double-sided reflector reflects a selected wavelength channel signal corresponding to the wavelength channel signal path in which the double-sided reflector is disposed back to the second port of the input optical circulator, and so that a second side of the double-sided reflector reflects an add signal having at least one wavelength corresponding to the wavelength channel signal path in which the double-sided reflector is disposed back to the second port of the output optical circulator and in a second mode of operation allowing the selected wavelength channel signal corresponding to the wavelength channel signal path in which the double-sided reflector is disposed to pass from the optical demultiplexer to the optical multiplexer, *wherein at least one of the optical demultiplexer and the optical multiplexer is wavelength-cyclic.* (Emphasis added.)

As described in the specification:

Additional system capabilities are provided when an input demultiplexer and an output demultiplexer are wavelength-cyclic, that is, have a filter response function that repeats over a period of wavelengths, which is called the free spectral range (FSR). A wavelength cyclic property can be designed into a waveguide grating router, Mach Zehnder interferometers, Fabry-Perot filters etc., to provide a particular FSR. See page 8 at ¶19.

This arrangement is neither disclosed nor suggested in Aksyuk. Although Aksyuk discloses a WDM optical switch, it neither discloses nor suggests a configuration where at least one of the optical demultiplexer and optical multiplexer is wavelength cyclic.

Furthermore, Aksyuk does not disclose or suggest a 4WCS “wherein the optical demultiplexer, optical multiplexer and each double-sided reflector is fabricated on a silicon substrate” as called for in claim 5 (now dependent on claim 7).

With regard to dependent claim 6, Aksyuk does not disclose or suggest a wavelength channel signal that includes a plurality of wavelengths within a predetermined free spectral range (FSR).

As for dependent claim 8, Aksyuk does not disclose or suggest a 4WCS wherein at least one double-sided reflector is a mechanical anti-reflection switch (MARS).

With respect to dependent claim 9, Aksyuk does not disclose or suggest a 4WCS wherein at least one double-sided reflector is a reflective thin-film interference filter.

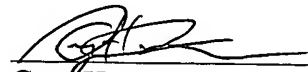
Finally, Aksyuk does not disclose or suggest a double-sided reflector that is a series of reflective thin-film interference filters, each of which corresponds to a different free spectral range (FSR) of the wavelength cyclic multiplexer and demultiplexer and each of filter can be set in either IN or OUT state, as called for in dependent claim 10.

In view of the foregoing, it is respectfully submitted that claims 5-10 are in condition for allowance, and allowance of these claims at an early date is solicited.

The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. 1.16 or 1.17 to AT&T Corp. Account No. 01-2745. The Examiner is invited to contact the undersigned at (201) 224-7957 to discuss any matter concerning this application.

Respectfully submitted,  
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By:

Date: 10/15/03

  
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